ON SOME INTERESTING FEATURES OF THE FAUNA OF THE WESTERN GHATS

BY

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The nearness of the Western Ghats to the place of our meeting this year and the charming peculiarities of its fauna have induced me to write this short note. It is written chiefly with the object of exciting some interest in the study of Natural History among the advanced students of zoology of the Bombay University. There are two striking peculiarities of the fauna of the Western Ghats, firstly the presence of a marine element in the fauna, and secondly the wonderful adaptations exhibited by several animals to the extremely wet and dry weather conditions that prevail at different times of the year in the Ghats. I shall illustrate my point by referring to four definite instances, which of late have attracted great attention and about which more information is badly needed. I want to refer to *Succinea arboricola* Rao, *Cremnoconchus syhadrensis* Blanford, *Lithotis rupicola* Blanford and *Limnocnida indica* Annandale. Besides these I shall have occasion to refer to several other interesting forms found in this area.

A very interesting mollusc, *Succinea arboricola* Rao,[1] was recently discovered by me aestivating on the bark of mango trees at Lonavla. A short note [2] on its habits was read at the last meeting of the Congress and has since then been published in the *Records of the Indian Museum*.[3] Several of the specimens collected during August and September, 1924, are still with me aestivating on the bark, and I have not been able to find out at what time of the year they become active. In the midst of heavy rains I found *S. arboricola* in deep slumber, and in the last week of December last year I found them in a similar comatose condition. The only changes that have been observed are that the number of individuals found in December is much less and that the mollusc, instead of being found on the bark, was found aestivating on scars left by the falling of leaves from small twigs. This observation leads to the conclusion that the animals had been leading an active life for some time during the months intervening between September and December. It would be extremely interesting to make fortnightly observations on these molluscs with a view to

[1] Rao, *Rec. Ind. Mus.*, xxvii. pp. 394–400 (1925).
[2] Hora, *Proc. Twelfth Ind. Sci. Cong.*, p. 148 (1925).
[3] Hora, *Rec. Ind. Mus.*, xxvii, pp. 401–403 (1925).

studying their behaviour under natural conditions from season to season, and to work out their entire life-history.

Cremnoconchus syhadrensis Blanford[1] is another peculiar mollusc of an essentially marine family—*Littorinidæ*—found on rocks below the falls at Khandhalla. The species seems to possess a very localised distribution, for last year when I was specially looking for them, I did not find a single specimen anywhere between Bombay and Mahabaleshwar except below the two big falls near Khandhalla. During the rains the falls are not quite accessible, but at other times of the year it takes from twenty to thirty minutes to reach them from the station with a suitable guide. Towards the end of December, after a very careful and long search, only two individuals of *Cremnoconchus syhadrensis* were found by me on the rocks kept moist by spray of water from the fall. They were, however, quite plentiful on big rocks projecting out of the water at the edge of the pool in the neighbourhood of the fall. They were found aestivating in small pits well protected from the mid-day sun. Drs. Annandale[2] and Prashad [3] have already referred to the peculiar mode of life of this species.

In the Nilgiris there is another mollusc of the family *Neritidae* which possesses more or less similar habits to those of *Cremnoconchus*. *Neritina perott etiana* Recluz[4] is found on rocks kept moist by spray from a fall or on the edges of streamlets where they are occasionally washed by the current of water. The Nilgiris, unlike the portion of the Western Ghats in the immediate neighbourhood of Bombay, are never extremely dry, because they get heavy rainfalls during both the monsoons. In accordance with the climatic conditions prevailing in the Nilgiris *Neritina perottetiana* is probably not called upon to hibernate in the dry season as does *Cremnoconchus syhadrensis,* and it was found that the animals of the former species died a few hours after they were removed from their natural habitat, while those of the latter are capable of surviving long periods of dessication.

Lithotis rupicola Blanford[5] is another highly peculiar mollusc of a very limited range. It was first described by Blanford from the edge of the waterfall at Khandhalla in 1863, but since then it has remained in obscurity. Very little was hitherto known regarding its habits and anatomy. From the material collected by me in 1924, Dr. H. S. Rao[6] has been able to confirm its distinct position in the family *Succineidae*. *Lithotis rupicola* was found in great abundance along with *Cremnoconchus* during rains, but we know very little about its mode of life after the rainy season. The late Dr. Annandale,[7] who visited the locality in March and April, records the entire absence of this mollusc from the cliffs below the Khandhalla falls. In December last year I

[1] Blanford, *Ann. Mag. Nat. Hist.* (3), xii, p. 184, Pl. IV. (1863).
[2] Annandale, *Rec. Ind. Mus.*, xvi, pp. 119, 148 (1919).
[3] Prashad, *Proc. Twelfth Ind. Sci. Cong.*, pp. 138, 139 (1925).
[4] Recluz, Rev. *Zool. Cuv.*, p. 333 (1841).
[5] Blanford, *Ann. Mag. Nat. Hist.* (3) XII, p. 186, Pl. IV, figs. 8-10 (1863).
[6] Rao, *Rec. Ind. Mus.*, xxvii, pp. 387-394 (1925).
[7] Annandale, *Rec. Ind. Mus.*, xvi, p. 119 (1919).

made a thorough search for it but with no success. Not even a single dry shell of the species was seen on the spot. The Succineid molluscs are known to hibernate on rocks, trees, etc., during the unfavourable season, but the exact conditions under which *Lithotis rupicola* passes the dry season still remains to be investigated. Another species of *Lithotis, L. tumida* Blanford,[1] known from Poona and the adjoining country, has not been found again since its discovery in 1870, and we know very little either about the structure of its animal or its habits.

I should also like to mention here a small species of *Paludomus*[2] and a highly modified, air-breathing Ampullarid—*Turbinicola saxea* Reeve[3]—which are abundant during the rainy season all over the Ghats from Khandhalla to Mahabaleshwar. Very few specimens were seen of the latter species in December, and to work out the entire life history of these two fairly common molluscs will be a nice piece of work.

In the Ghats in 1911, Prof. Agharkar discovered a widely distributed freshwater medusa, and realising the significance of such a discovery, Annandale sent a short note to *Nature* and to the *Proceedings of the Asiatic Society of Bengal.*[4] Next year when he examined better preserved material, he[5] christened the medusa *Limnocnida indica.* In the same year a note on its habits and distribution was published by Gravely and Agharkar.[6] In 1913 Agharkar[7] published a further note on the species. The medusae have so far been collected from the Krishna river at Dhom, Yenna river at Medha, and the Koyna river at Tambi. I was informed by an old fisherman at Wai that these 'flowers' were also to be found in a big tank adjoining the bridge near Wai, and there is no apparent reason why these medusae should not be found all over the valleys of these rivers in suitable places. Several attempts have been made to find the asexual phase of this medusa or the hydroid stage, but so far without any success. The medusae appear in March and April and disappear suddenly with the first showers of the monsoon rains. The best way to find its hydroid stage is to pay occasional visits to these places from February to May and to look carefully for the growth on the rocks, or to try to breed the medusae under more or less natural conditions.

Besides the peculiarly modified individuals mentioned above, there is a great variety of interesting animals found in the Ghats and the report published by the late Dr. N. Annandale on the fauna of certain small streams in the Bombay Presidency, shows the wealth of material that is to be found in this area and the fascinating characters of its fauna.

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[1] Blanford, *Journ. As. Soc. Bengal*, xxxix, p. 23, Pl. 3, Fig. 24 (1870).
[2] Annandale, *Rec. Ind. Mus.*, xvi, p. 147 (1919).
[3] Prashad, *Mem. Ind. Mus.* viii, pp. 87, 88 (1925).
[4] Annandale, *Proc. As. Soc. Bengal*, for May, 1911, also Annandale, *Nature*, xxxiii, p. 144 (1911).
[5] Annandale, *Rec. Ind. Mus.*, vii, pp. 253–256 (1912).
[6] Gravely and Agharkar, *Rec. Ind. Mus.*, vii, pp. 399–403 (1912).
[7] Agharkar, *Rec. Ind. Mus.*, ix, pp. 247–249 (1913).